

A Mystery Dragonfly

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One question that regularly comes up within cryptozoology is, are there any insect cryptids? Sometimes this is brought up to suggest that small creatures are of little interest to cryptozoology, or because a critic is trying to imply that cryptozoology only concerns itself with ‘monsters.’ As I’ve noted before (time and again), the only criteria for a mystery animal that regards size, is its salience. If an animal can be recognized as distinctive and unique in appearance, differing from other creatures, so entering the folkloric pathway that asks, ‘What the heck was that?’, then it can qualify as a cryptid. There aren’t as many smaller mystery animals recognized, but that has more to do with investigator interest than in lack of candidates. A few have entered the cryptozoological literature, like the bioluminescent spider of Myanmar or the Australian bioluminescent moth. There are also cases of new species that were chased for years before their discovery, like the giant walkingstick from South China. In 1998, a Chinese entomologist was told by locals in Guangxi Zhuang Autonomous Region about a ‘half-meter-long’ giant, but it wasn’t until 2014 that he located a specimen (Xinhua 2016).

It is currently recognized that there are millions of insects that remain undescribed. Estimates vary on how many millions (could be between two and thirty million, according to the Smithsonian). Most are in the tropics where biodiversity among most organisms is highest. In the U.S., we have about 91,000 described species and an estimated 73,000 yet to be named (Smithsonian n.d.). Most of these will likely be beetles, flies, moths, and Hymenoptera (ants, bees, wasps), where there are lots of minute species that require specialist determination. Even among the better-known (and larger) insects, though, like the Odonata (dragonflies and damselflies, with about 450 species in the U.S.), new species are sometimes named. Often these are distinguished

by tiny morphological characters that aren't readily observable without a specimen in hand. (Some traits like color or pattern are highly variable or can overlap between species. Meadowhawks, for example, can be tricky to distinguish in some parts of the country without examining the male's secondary genitalia, or hamules, underneath the body; even then, the legitimacy of some species is under debate (Pilgrim and von Dohlen 2007).)

As with most creatures, most undescribed Odonates in North America can be expected to be smaller (e.g. damselflies), related to similarly-colored or patterned species, and may live in remote or specialized habitats where people (especially wandering entomologists) are less likely to visit. There's one interesting case where a new dragonfly made a splash, with notices published in the national news.

THE ST. CROIX SNAKETAIL

In the summer of 1989, William Smith, a zoologist with the Wisconsin DNR's Natural Heritage Inventory Program, was surveying dragonfly exuviae (the shed skin that dragonflies cast off as they transform from larvae to adult) in the St. Croix River of northwestern Wisconsin (Brody 1997). Sixteen exuviae looked different from any other that he had seen, though they keyed out to snaketails. A fellow entomologist, Timothy Vogt, was able to rule out snaketail species from outside North America (as dragonflies sometimes are accidentally transplanted). To determine whether these were from a new species, the biologists knew that an adult would be needed. By this time, mid-fall, it was too late in the season to look for active, flying adults, so they decided to search for dormant nymphs in the frigid river. Going back to the same location, they found several specimens "in water of at least 1 m depth and only where the current was so swift that collectors had extreme difficulty remaining in place" (Vogt and Smith 1993). These nymphs were maintained until the adults emerged, allowing the biologists to determine for certain that they were in fact a new species, which they named *Ophiogomphus susbehcha* (*susbehcha* being Lakota Sioux for dragonfly). This discovery received wide public notice in 1991-1992, particularly as further investigation located the species along the Chippewa and Flambeau Rivers, prompting discussion that it might derail plans for a planned copper mine (AP 1991; Knight 1991; AP 1992).

One fascinating side development with the St. Croix snaketail is that the species has more recently been discovered in a few rivers in Maryland and Virginia, with a historical record from eastern Pennsylvania (Orr 2018). It is as yet undetermined whether this population should be considered a new subspecies; they do appear to be a bit smaller than those from the Wisconsin population.

Several new North American gomphids were discovered in the 1980s and 1990s (for example, the southern snaketail, *Ophiogomphus australis*, and the Sioux snaketail, *Ophiogomphus smithi*, which was named for co-discoverer William Smith). These types of dragonflies often have small, localized populations, and because they aren't as flashy or distinctive as the well-known pond skimmers or darners, may require examination of key anatomy to identify. It's certainly possible that additional species await discovery, but that will likely require entomological surveys of adults or nymphs to capture specimens for closer inspection. Chances are slim that any of these will be cryptozoological (which requires some form of ethnozoological attachment prior to discovery that would allow for a targeted search).

But that doesn't mean there can't be a cryptozoological dragonfly.

THE MYSTERY PETALTAIL

While attending the Ohio Odonata Conference in 2017, I was a little surprised to hear the keynote speaker mention in passing that there appeared to be an undescribed species of petaltail here in the eastern United States. Petaltails (Family Petaluridae) are considered an 'ancient' group of dragonflies, with fossils known from Jurassic rocks. Two species are known from North America: the black petaltail (*Tanypteryx hageni*) of the Pacific Northwest, and the gray petaltail (*Tachopteryx thoreyi*) of the eastern United States. Gray petaltails are fairly well known, though are usually found in woodlands with permanent seeps or boggy areas, where the semiaquatic larvae burrow into the mud or under wet leaves. The adults are known for perching directly on a dragonfly enthusiast's clothes, hat, or face.

Gathering details on the mystery petaltail was a bit tricky, as there are ongoing 'expeditions' in search of the species and professional entomologists don't always care to have amateurs mucking about in their business, especially when a new species is on the line. (This isn't new; for a fascinating discussion of the tension between a professional

entomologist and an ‘amateur regional expert’ as they corresponded about a new dragonfly species in the early 1900s, see White and O’Brien (2017).) Of course, there’s more at stake here than just a new species. One of the most frustrating aspects of cryptozoology is that we know that ethnozoological targeted searches occur in ‘normal’ zoology, but it is rarely if ever documented. Zoologists simply publish the description and name, perhaps some habitat details, but rarely how they came to discover the species if it didn’t occur in a random survey. This is at odds with the history of discoveries in physics, astronomy, chemistry, etc., where the methodology of discovery is often given due credit. So, if nothing else, the cryptozoological literature offers opportunity to correct this imbalance.

The petaltail in question was first spotted 5 or 6 years ago at a central Tennessee rest stop. It has been seen multiple times since by several different dragonfly enthusiasts (including professional entomologists, one of whom has jokingly referred to it as the ‘Sasquatch’ dragonfly). It is recognizable by a larger size than the typical gray petaltail (which at 3 inches long is already one of the larger dragonflies in the eastern U.S.). I was told it may in fact be larger than a dragonhunter (*Hagenius brevistylus*), which can be almost 4 inches long. Some giant petaltails in Australia (genus *Petalura*) are known to reach almost 5 inches in length, so it would be fascinating to discover a giant species here in the U.S.

With a concerted effort being made to collect a specimen, I suspect this is one mystery that won’t remain so for long. And, perhaps its discovery will inspire other nature enthusiasts to learn more about their regional Odonata, and get involved in state surveys to find out what is where, and if there are other species yet undiscovered.

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